AF/1772

PATENT APPLICATION

EXPEDITED PROCEDURE
TECHNOLOGY CENTER ART UNIT 1772

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Noboru KIMURA et al.

Group Art Unit: 1772

Application No.: 09/780,355

Examiner: M. Patterson

Filed: February 12, 2001

Docket No.: 108564

For: PYROLYTIC BORON NITRIDE DOUBLE CONTAINER AND MANUFACTURE THEREOF

RESPONSE TO FINAL REJECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the January 27, 2004 Office Action, the period for reply being extended by the attached Petition for Extension of Time, reconsideration of the rejection is respectfully requested in light of the following remarks. Claims 1-22 and 25-27 are pending in this application.

The Office Action rejects claims 1-22 and 25-27 under 35 U.S.C. §103(a) over Lashway (U.S. Patent No. 3,986,822) in view of Kimura et al. (European Patent No. 0842913). Applicants respectfully traverse the rejection.

In particular, Applicants assert that neither Lashway nor Kimura, either alone or in combination, disclose, suggest or render obvious a pyrolytic boron nitride (PBN) double container including at least an outer container having an outer container transmissivity with respect to light having a wave number of 2600 cm^{-1} to 6500 cm^{-1}, and an inner container having an inner container transmissivity with respect to light having a wave number of 2600 cm^{-1} to

6500 cm^{-1}, wherein the inner container transmissivity is 90% or less of the outer container transmissivity, as recited in independent claim 1.

Specifically, Lashway discloses a pyrolytic boron nitride multilayer crucible that is suitable for the vaporization of aluminum and having a multi-walled structure including an outer wall of pyrolytic boron nitride and a thinner inner wall of pyrolytic boron nitride laminated to the thicker outer wall (Abstract). The Office Action admits that Lashway fails to disclose the relative transmissivities of the inner and the outer container.

Moreover, Kimura discloses a pyrolytic boron nitride container characterized by the transmissivity of the pyrolytic boron nitride container with respect to light having a wave number of 2600 cm^{-1} to 6500 cm^{-1} has a profile such that the transmissivity changes in the height direction of the container. Kimura teaches that if a pyrolytic boron nitride container has a profile such that the transmissivity changes in the height direction of the container (page 3, lines 11-13), and the temperature of the upper portion of the container is maintained high, then adhesion of material melt to the upper portion and rising of the material melt in the upper portion can be suppressed.

However, because Lashway discloses that the inner container is thinner than the outer container, and since both containers are made out of the same material (PBN), then the transmissivity of the inner container is necessarily higher than the transmissivity of the outer container because a thin wall will allow more radiation through than a thick wall. Furthermore, in order for the transmissivity of the inner container to be 90% or less of the transmissivity of the outer container, the inner container has to be thicker than the outer container because both containers are made out of the same material. Thus, Lashway instead teaches an inner container being thinner than the outer container. Accordingly, the container disclosed in Lashway has an inner container/outer container configuration that is exactly opposite in transmissivity to the container recited in independent claim 1.

Furthermore, the container taught in Kimura is not a double container, but a single container. Thus, Kimura teaches that the transmissivity of the PBN single container with respect to light having a wave number of 2600 cm^{-1} to 6500 cm^{-1} changes in the height direction of the container, i.e., increases and decreases from the lower portion to the upper portion of the container. However, Kimura does not teach or further characterize the transmissivities of the inner side and of the outer side of the container. Accordingly, any combination of Lashway and Kimura would not result in a double container where the transmissivity of the inner container of the PBN double container is less than the transmissivity of the outer container of the PBN double container, whereby the transmissivity of the inner container is not less than 90% of the transmissivity of the outer container.

Because a combination of Kimura and Lashway do not disclose these features, any combination of the references would not have resulted in a PBN double container wherein the transmissivity of the inner container would vary only in the height direction because Kimura's main goal is to prevent adhesion in rising of raw material in the PBN container (Fig. 2). Moreover, because Lashway teaches that the inner container is thinner than the outer container, and the transmissivity of the inner container is necessarily higher than the transmissivity of the outer container, a combination of the PBN signal container of Kimura and of the PBN double container of Lashway would not have resulted in the PBN double container recited in independent claim 1.

Accordingly, Applicants respectfully submit that it would not have been obvious to combine Lashway and Kimura to arrive at the claimed invention. Thus, independent claim 1 (and its dependent claims) are patentable over a combination of Kimura and Lashway. As such, Applicants respectfully request that the rejection under 35 U.S.C. §103(a) be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-22 and 25-27 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

William P. Berridge
Registration No. 30,024

Richard S. Elias
Registration No. 48,806

WPB:RSE/dmw

Attachment:
Petition for Extension of Time

Date: May 26, 2004

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461